

Request form
for an
ASHRAE Position Document

TO: TECHNOLOGY COUNCIL

Originator: **EHC and TEGA**

Date 14/1/02

Topic: Allergies, Asthma and the Indoor Built Environment

Describe the issue

The incidence and prevalence of atopic diseases such as atopic (allergic) dermatitis, allergic rhinitis, and atopic (allergic) asthma, are increasing worldwide. From being unusual illnesses a few decades ago, today the cumulative incidence of any-allergic-disease, in many regions affect up to and sometimes more than half of the population. Children are more affected than the elderly.

The **cause** or the causes, of the increase in **incidence of allergies (sensitization)** are not known. Human genetic changes cannot explain the rapid increase in allergies (the time span is too short). With few exceptions, notably the increase in allergies to house dust mites in cold climate (mainly due to energy conservation measures leading to reduced ventilation), there is no evidence of an increase in allergens (e.g. from pets and plants) sufficient to explain the increase in allergies and asthma. Other changes in environmental exposures are seemingly important. A number of hypotheses regarding such causative changes in environmental exposures are discussed, e.g. the role of breastfeeding, infections during infancy, vaccinations, food and food habits, obesity, exposure to ETS and pets, non-farming life, and changes in the indoor environment.

So far, the most consistent environmental risk factor for incidence of asthma, in the epidemiological scientific literature, is "building dampness", and an increased infestation of house dust mites, followed by mothers smoking during pregnancy and the first year of life of the child. "Building dampness" is, however, not well defined in the scientific literature and include e.g. obvious mould growth, damp spots, condensation on windows, water damages, and flooding. House dust mite infestation and condensation on windows, and other cold surfaces, is in a cold climate directly linked to reduced ventilation.

The prevalence (acute attacks) of allergies is mainly linked with exposures to allergens (indoors emanating from pets, house dust mites, cockroaches, mould or plants, all mainly indoor exposures) or to e.g. cold air, or irritating substances (e.g. ETS, or fragrances (also indoor)). Acute respiratory illnesses are also strongly associated with periods of exacerbated asthma, and building factors appear to influence the prevalence of those respiratory illnesses.

If the Society develops a position document, what specific items should be addressed?

1. To give a state of the art description of the importance of atopic diseases from a public health perspective.
2. To give a state of the art report on the role of indoor environments for incidence and prevalence of atopic diseases.
3. To acknowledge the role of ASHRAE (Standards, handbooks, and information) to influence the situation to the better.

Restrictions:

1. The position paper will deal with atopic diseases and not other hypersensitivity diseases.
2. Non-industrial indoor environments will be at the focus of the document.

What is the time frame?

The first part of the position document, the state of art of knowledge regarding the increase in allergies and the role of indoor environments, will be presented at EHC and TEGA meetings in Honolulu, June 2002.

Further development of the "state of art" part and the role of ASHRAE will be finalized before June 2003.